

WORKING P A P E R

The Experience of Outdoor Education at Operation Purple® Camp

Findings From a Sample of Youth Participants

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Introduction

Outdoor education, or conveying information related to the natural environment and conservation, is increasingly implemented in youth development programs such as youth leadership summits, summer camps, and other after-school initiatives. Despite the popularity of these programs, it is important to examine the benefits of these programs to see how well they work. Benefits may include improving the ways that young people interact with nature and integrate environmental protection practices into their daily lives or improving youth self-esteem and leadership skills.

To date, only a few studies have examined the impact of outdoor education programs. In general, studies have shown a positive impact on attitudes and interest in the environment and nature. For instance, Dresner and Gill (1994) conducted a pretest–posttest analysis among youth attending Wolf Creek Nature Camp and found that upon completion of the two-week program, campers had higher self-esteem, increased interest in and curiosity about nature, improved outdoor skills. In a study of a conservation education camp offered through a zoo education department, Kruse and Card (2004) found that campers' conservation knowledge, attitude, and behavior (such as recycling, improving habitats, and encouraging others' awareness of wildlife protection) scores increased after participation in the camp. The American Institutes for Research (AIR) conducted an evaluation of three week-long residential outdoor education programs for at-risk sixth graders in California (2005). AIR found that youth who participated in the outdoor school were more likely to engage in positive environmental behaviors (such as recycling or closing the refrigerator door, based on parent report) than those who did not participate in the program.

Other studies have extended these analyses to explore the effects of outdoor education on a range of behavioral outcomes, such as self-esteem and related variables. Neill (2002) reviewed five meta-analyses that evaluated the impact of outdoor education programs and concluded that the programs had small to moderate impacts on self-concept, locus of control, and team work. Rickinson et al. (2004) conducted a meta-analysis of 150 studies of outdoor learning (1993–2003) and found that outdoor adventure programs could have a positive impact on young people's attitudes, beliefs, and self-perceptions (including independence, confidence, self-esteem, locus of control, self-efficacy, personal effectiveness, and coping strategies) and interpersonal and social skills (social effectiveness, communication skills, group cohesion, and teamwork). The authors' review of studies also indicated a link between outdoor adventure activities and environmental understanding and values; however, they indicated that the evidence for this link was not strong.

Given the potential benefits of outdoor education, it is important to continue assessments of their relative value across diverse youth groups. In summer 2008, the Sierra Club partnered with the National Military Family Association to implement outdoor education activities in *Operation Purple*® camps. *Operation Purple*® is a free camp for youth from military families. In 2008, there were 63 camps at sites nationwide. The mission of *Operation Purple*® is to facilitate socialization among military youth and to help youth,

particularly those who have experienced a parental deployment, cope with the stress of war. *Operation Purple*® campers participate in a variety of other activities, including outdoor education. Youth between 7 and 17 are eligible to attend. The *Operation Purple*® curriculum is designed to incorporate outdoor activities intended to meet four objectives: (1) teach children about outdoor environment through nature walks; (2) educate camp participants about ways to preserve and keep the environment clean; (3) expose children to the psychological and emotional benefits of outdoor activities, such as taking a walk to release stress; and (4) teach children to enjoy the outdoors through group and individual activities, such as camping. The outdoor education curriculum was primarily intended to focus on local ecology (e.g., ideas about conservation and the impact of humans on the environment) and good stewardship of the environment (e.g., recycling). Most of the camps included activities on how to enjoy the outdoor environment, although the camps did vary in how they addressed the four objectives and the relative emphasis on nature walks versus camping or other activities.

This study was conducted to determine (a) the level of engagement in outdoor and environmentally friendly activities during camp participation with attention to environmental stewardship and interests in outdoor activities (e.g., hiking, ecology); (b) camp participants' intentions to continue such activities; (c) the extent to which those activities are sustained post-camp; and (d) whether those activities are a topic of discussion between the participant and his/her nondeployed caregiver.

Methods

The data presented in this report are part of a larger study on the experiences of youth applicants to *Operation Purple*® and their nondeployed caregivers (see Chandra et al., 2010 and 2011 for more information about the study population and study results). The primary goal of the larger study was to understand the experiences and challenges that youth and caregivers face during and after parental deployment. The study included computer assisted telephone interviews (CATI) with randomly selected youth ages 11–17 and their nondeployed caregivers across three time points between summer 2008 and fall 2009. The surveys were administered every six months and included a range of questions related to youth and caregiver social and emotional well-being, as well as experiences associated with parental deployment.

In this report, we focus on the experience of outdoor education, including both youth and caregiver perspectives. As part of the surveys conducted at the 6- and 12-month time points, we included questions related to the experience of outdoor education among those youth who attended *Operation Purple*® during the summer of 2008 and participation in outdoor and environmental activities following camp attendance. At six months, we asked respondents to identify which outdoor education activities they had participated in at camp, whether they were continuing those activities at home, and whether they discussed those activities with their caregivers. During the 12-month survey, we primarily focused on the latter two categories. As acknowledged in the discussion, these questions were not included at baseline, so we do not know the extent to which youth had had outdoor education experience prior to camp. Given that the primary goal of the study

was to explore youth well-being and had less focus on outdoor education, not all youth completed a baseline survey before camp attendance.

The study sampled youth between 11 and 17 years of age from the camp's application pool. Nearly 15,000 youth applied to attend camp in 2008, and approximately 9,138 children attended camp in 2008. At baseline, we randomly recruited 1,507 youth from the *Operation Purple*® applicant pool to participate in the survey; 1,267 participated in the 6-month follow-up survey and 1,156 participated in the 12-month follow-up survey. Of those who completed the 6- and 12-month follow-up surveys, 917 (72 percent) and 818 (71 percent) attended camp in 2008, respectively. We include only those respondents who attended camp in the analyses described below. Sixty-eight campsites hosted participants in 2008; 57 campsites are represented in the analyses.

We present descriptive (univariate and bivariate) analyses to describe the survey results with respect to exposure to and participation in outdoor education activities during the 2008 *Operation Purple*® camp. We also present self-reported results related to whether the lessons learned at camp about outdoor education were used after camp concluded. The nature, type, and frequency of outdoor education activities were variable across camp sites. Education opportunities included hiking, camping, learning about wildlife, and learning about conservation. Site-specific information about activities, number of activities, and frequency of activity implementation was not available; thus, our analyses are based on youth and parent report of the general outdoor education experiences at camp, without anchoring them to specific activities. Our analysis does include camp participants' intention to sustain specific outdoor and environmentally friendly activities following camp attendance and whether these topics were discussed with their nondeployed parents/caregivers.

Results

Sample Characteristics: The mean age of the youth attending camp and completing both surveys was 12.8 years (SD=1.5). Seventy-eight percent of these respondents identified as non-Hispanic white, 7 percent as non-Hispanic black, 5 percent as Hispanic, and 10 percent as multiracial or another race. Fifty percent of the campers were female. Twenty-four percent of our sample had attended *Operation Purple*® camp in 2007.

Participation in Outdoor Activities

At the 6-month follow-up interview, we asked both parents and youth (campers) questions about their participation in and experiences with outdoor activities at *Operation Purple*® camp. With respect to the type of activities they participated in, youth respondents most frequently reported taking hikes (78 percent), learning about camping (72 percent), and learning about wildlife (68 percent); youth respondents also reported learning about conservation, plants, and recycling (see Table 1).

Table 1. Youth (Campers) Report of Participation in Types of Outdoor Activities and Interest in Future Participation (6-Month Survey, n=917)

	Participated (percent)	Would like to do more of it in future (if said yes) (percent)
Learning about wildlife	519 (68 %)	486 (94%)
Learning about conservation like taking care of the planet	450 (59%)	408 (91%)
Learning about plants	371 (48%)	303 (82%)
Learning about recycling	315 (41%)	259 (82%)
Taking hikes	597 (78%)	547 (92%)
Learning about camping	555 (72%)	501 (90%)

Older youth (15–17 years) were significantly more likely to report that they took hikes while younger youth (11–14 years) were significantly more likely to report that they learned about wildlife at camp ($p=0.01$).

The majority of youth who participated in these activities expressed interest in participating in them again in the future. Learning about wildlife was ranked the highest activity youth would like to do more of in the future (94 percent). Girls were significantly more likely to report wanting to learn more about conservation (95 percent versus 86 percent, $p<0.01$) than boys in the sample.

Parent-Youth Discussions of Camp Activities

Among parents of campers, 99 percent said that they talked to their children about the outdoor activities that they did at camp. Parents were asked whether they talked about specific outdoor activities with their children; most families talked about taking hikes and learning about camping. Younger campers (11–14 years) were more likely to talk to their parents about learning about plants than older youth (15–17 years) ($p<0.01$). Among the six topics of discussion, girls were more likely to talk to their parents about learning about conservation compared to boys ($p<0.05$); other responses by gender and for the entire study sample are provided in Table 2.

Table 2. Frequency of Discussion of Camp Activity with Campers at 6-Month Follow-Up Survey (n=917)

	Talked about activity with youth (percent)		
	Girls	Boys	Total
Learning about wildlife	170 (44%)	187 (48%)	357 (46%)
Learning about conservation, like taking care of the planet	199 (52%)	172 (44%)	371 (48%)
Learning about plants	163 (42%)	151 (39%)	314 (41%)
Learning about recycling	185 (48%)	169 (44%)	354 (46%)
Taking hikes	347 (90%)	356 (92%)	703 (91%)
Learning about camping	300 (78%)	298 (77%)	598 (77%)

Engagement in “Green” Activities After Returning Home from Camp

Study participants were asked whether they applied what they learned about outdoor education or being “green” at home after they returned from camp. Fifty-nine percent of campers’ parents and 60 percent of campers reported participation in activities related to outdoor education or being green at the 6-month follow-up (one and two percent of parents and youth, respectively, responded “don’t know” at six months); 49 percent of parents and 67 percent of campers reported participation in such activities at the 12-month follow-up (one and less than one percent of parents and campers, respectively, responded “don’t know” at twelve months).

At the 6-month follow up, campers were asked what nature activities they participated in after returning from camp. About half of the campers reported taking hikes, with somewhat fewer reporting discussing wildlife in their neighborhood, identifying plants, and about a quarter reporting planting trees (see Table 3 for details). Girl campers were more likely than boy campers to report going on hikes upon returning from camp ($p<0.01$). Younger campers (11–14 years) were more likely to report identifying plants ($p<0.0001$) and discussing wildlife ($p<0.01$) than older campers (15–17 years).

Table 3. Frequency of Participation in Nature Activities upon Return from Camp (6-Month Follow-Up Survey, n=917)

Response	Girls’ Participation (percent of girls)	Boys’ Participation (percent of boys)	Total Participation (percent of total)
Taking hikes	178 (55%)	217 (46%)	395 (50%)
Identifying plants	149 (38%)	159 (40%)	308 (39%)
Discussing wildlife in your neighborhood	155 (40%)	169 (43%)	324 (41%)
Planting trees	93 (24%)	91 (23%)	184 (24%)

At both the 6-month and 12-month follow-up surveys, study participants were also asked about the kinds of things that they did at home related to outdoor activities and being green. Responses are displayed in Table 4 and are limited to the sample that completed both follow-up surveys. Across survey time points, taking hikes, going camping, and playing outside more were cited at similar frequencies, suggesting that these activities were sustained a year after camp participation. Note that the question that informed Table 4 is the same across the two follow-up survey waves; differences in response in the percentages across waves may be due to the questions that preceded this item in the 6-month versus the 12-month follow-up survey. At six months, respondents were first read a list of items that they may have participated in during the 2008 camp. Then, they were asked about what activities they did at home (list not read). At 12 months, the preceding question about camp activity participation was not read. The respondents were only asked (as at six months) to list the activities they continued to do one year after camp.

Respondents also noted some other activities not listed in the response options. Popular “other” responses included gardening (6 percent of parents at 6 months, 7 percent of parents at 12 months), hunting and fishing (6 percent of parents at 12 months), other recreational activity mentions (9 percent of parents at 12 months), sports (17 percent of parents at 12 months), riding bikes (9 percent of parents at 12 months) and swimming (5 percent of parents at 12 months). Other mentions include volunteer work, taking walks, studying nature and wildlife, conserving energy, composting, and using eco-friendly products (less than 5 percent of parents).

Table 4. Frequency of Participation in Outdoor Education Activities at Home (6-Month and 12-Month Follow-Up Surveys)

Response	Parents’ Responses (247)		Youth’s Responses (322)	
	Participation at 6 months	Participation at 12 months	Participation at 6 months	Participation at 12 months
Recycling at home	176 (72%)	19 (8%)	195 (61%)	45 (14%)
Changing light bulbs	13 (5%)	0 (0%)	14 (4%)	2 (1%)
Turning off lights more	23 (9%)	3 (1%)	26 (8%)	6 (2%)
Taking shorter showers/baths	11 (4%)	0 (0%)	11 (3%)	2 (1%)
Collecting garbage in my neighborhood	7 (3%)	6 (2%)	23 (7%)	18 (6%)
Choosing paper over plastic bags	7 (3%)	0 (0%)	3 (1%)	1 (<1%)
Visiting parks	6 (2%)	6 (2%)	4 (1%)	5 (2%)
Taking hikes	49 (20%)	54 (22%)	43 (13%)	54 (17%)
Going camping	56 (23%)	36 (15%)	41 (13%)	33 (10%)
Playing outside more	20 (8%)	150 (61%)	40 (12%)	191 (60%)
Other (specify)	68 (28%)	108 (44%)	91 (28%)	125 (39%)

Discussion

Overall, campers and their parents reported taking part in a wide range of outdoor education activities at *Operation Purple®* camp. With regard to sustained activities after camp, the results indicate that camp participants and their parent talked about these activities upon returning home. Further, compared to other outdoor education activities such as learning about nature and wildlife, hiking and camping activities were reported more frequently as points of discussion after camp. Gender differences emerged, with girls expressing more interest in conservation and discussing this topic with their parents.

While the vast majority of camp participants reported continuing many of the outdoor and green activities they learned at *Operation Purple®*, there were some differences by age and gender. Specifically, younger youth (11–14 years) expressed more interest than

older youth (15–17 years) in learning about plants and wildlife. Girls were more likely than boys to take hikes after camp.

The findings suggest a few directions for programming and additional research. It may be useful to review the content of the outdoor education activities to determine if and how curriculum should align with youth interests by age and gender. Given that “learning about plants” was less frequently cited as an activity after camp compared with hiking or camping, it may merit consideration of how the topics of plants and wildlife are discussed or presented to youth. In the area of research, future assessments of outdoor education should include a pre-camp survey to capture the activities that youth and families are already pursuing in order to more adequately capture change in activity participation over time. Due to logistics and the fact that the primary goal of the study was to examine youth well-being, the baseline survey was not always conducted before camp. In addition, a quasi-experimental or experimental research design would allow comparison of outdoor education activity participation (and maintenance of activity participation) among those attending camp and those who do not attend. Finally, it may be useful to employ qualitative analysis to supplement survey findings; the qualitative data would allow for more exploration of how camp has changed perspectives towards the environment. The analysis could also describe the content of the conversations that families have about conservation and outdoor activities.

Although these findings suggest important areas for future research, there are a few limitations to note about this analysis. First, this is a retrospective analysis, in which youth and parents provided a recall on the camp experience, and we do not know how many outdoor activities these families participated in before camp. Second, we had no information on the content of outdoor education within each camp, which may have contributed to the differential experiences by age and gender. Outdoor education activities may also have differed depending on the age compositions of each camp. For example, camps serving younger youth may have done more activities related to wildlife and learning about plants. Further, we do not know if there is any social desirability bias in how youth and parents answered questions about conservation in particular, given that, despite actual practice, individuals may report pro-environmental protection attitudes and behaviors.

Despite the potential limitations to these analyses, it appears that participants in outdoor education offered through *Operation Purple*® discussed these topics when they returned home from camp and that discussions about outdoor activities occurred in the majority of homes one year later.

References

American Institutes for Research. Effects of Outdoor Education Programs for Youth in California. January 27, 2005. As of December 20, 2010:

<http://www.air.org/files/Outdoorschoolreport.pdf>

Chandra A, Lara-Cinisomo S, Jaycox LH et al. (2010). Children on the Homefront: The Experiences of Children from Military Families. *Pediatrics*. 25(1): 13–22.

Chandra A, Lara-Cinisoma S, Jaycox LH et al. (2011). *Views from the Homefront: The Experiences of Youth and Spouses from Military Families*. Santa Monica, Calif.: RAND Corporation, TR-913-NMFA.

Dresner, M. & Gill, M. (1994). Environmental Education at Summer Camp. *Journal of Environmental Education* 25(3); 35–42.

Kruse C.K. & Card J.A. (2004). Effects of a Conservation Education Camp Program on Campers' Self-Reported Knowledge, Attitude, and Behavior. *Journal of Environmental Education* 35(4); 33–45.

Neill, J.T. (2002). Meta-Analytic Research on the Outcomes of Outdoor Education. Paper presented to the 6th Biennial Coalition for Education in the Outdoors Research Symposium, Bradford Woods, Ind., January 11–13, 2002.

Rickinson, M., Dillon, J., Teamey, K., Morris, M., Choi M.Y., Sanders, D., & Benefield, P. (2004, March). *A Review of Research on Outdoor Learning*. London: National Foundation for Educational Research and King's College London.